

REMARKS/ARGUMENTS

Claims 1-11 are pending in this application. Claims 1 and 7 have been amended as indicated above.

Claim 11 was rejected under 35 U.S.C.101 and under 35 U.S.C.112. Applicant believes that the amendment to Claim 11 and the corresponding amendment to the Specification make Claim 11 compliant with the requirements of cited sections 35 U.S.C.101 and under 35 U.S.C.112. Withdrawal of rejection of Claim 11 is respectfully requested. No new matter has been added.

Claims 1, 2, 7, 8 and 11 are rejected under 35 U.S.C.103(a) over Sezan et al. (US Patent 5,682,205) in view of Ma (US Patent 7,072,398 B2). This rejection is respectfully traversed for the following reasons.

Unless a publication discloses within the four corners of the document not only all of the elements and limitations claimed but also all of the elements and limitations arranged or combined in the same way as recited in the claim, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 U.S.C. § 102.¹

First, the Patent Office has stated that Sezan discloses a “method for optimizing the image quality of movable subjects imaged with a microscope system” (non-final Office Action, page 5, section 10). Applicant respectfully disagrees: microscopes are not mentioned, implied or suggested in Sezan. The Patent Office is respectfully requested to point out an excerpt in Sezan where there is a disclosure related to a microscope.

Second, the Patent Office has stated that Sezan discloses “determining a respective displacement vector field (fig. 12A:E1) from a comparison (“compared” in col. 10, lines 9-15) of pixels of each two chronologically successive images (as shown in Fig. 2)” (non-final Office Action, page 5, section 10).

¹ *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983))

Applicant respectfully disagrees. Independent Claim 1, as amended, recites that for each two chronologically successively acquired images, comparing two chronologically successively acquired values detected for each pixel of the detector unit to determine a respective displacement vector field between the two chronologically successively acquired images (support for this amendment can be found in paragraph [0027] of the present application).

Contrary to that element in amended Claim 1, Sezan discloses a process and apparatus for generating a deinterlaced digital output image (abstract), wherein an even (or odd) field is deinterlaced into a full frame (Col. 1 lines 41-43). Specifically, in the description of Fig. 2, Sezan describes certain aspects of a technology disclosed in US 4,472,732 (Bennett), which “describes a method which employs the pixel-to-pixel difference in neighboring fields with the same polarity (e.g. even fields) that immediately follow and precede the field to be deinterlaced (e.g. an odd field), in order to perform motion detection” (Col 2, lines 30-35), wherein “an even field contains data at only even-numbered line locations (e.g. lines 0, 2, 4, 6, and 8), and an odd field contains data at only odd-numbered line locations (e.g. times 1, 3, 5, 7) (Col 1, lines 34-37).

Therefore, it follows from the referenced teachings of Sezan, as well as its Fig. 12A, that even field E1 (Col 12, line 51) is not compared with its chronologically successive odd field O1, but only with another even field E2, which follows *after* odd field O1. Sezan discloses that “an even field has no pixel values for odd numbered lines of the full frame, and an odd field has no pixel values for even numbered fields” (Col 1, line 37-40). In other words, in Sezan only even fields and odd fields are compared, and since even and odd fields in that disclosure are interlaced, no comparing two chronologically successively acquired values detected for each pixel of the detector unit for each two chronologically successively acquired images is taught or suggested in Sezan.

Furthermore, amended Claim 1 recites acquired values detected for each pixel of the detector unit. This claims element is directed to the values of each pixel registered by each element of a detector unit (such as a pixel of a CMOS sensor, for example), as opposed to the Sezan disclosure, wherein images are formed by post processing (such as a TV/video-coded signal). There is nothing in the Sezan disclosure that teaches comparing of the values for pixel of the detector unit, as claimed in amended Claim 1. If the Patent Office disagrees, it is asked to point out the specific line and column number of Sezan where such disclosure can be found.

The Patent Office further states that Sezan discloses that “the acquired images are not subjected to compression or decompression during the applying of the operation (given that Sezan does not mention compression, Sezan’s images of E1 and E2 are reasonably not subject to compression)’.

Applicant respectfully disagrees. Images E1 and E2 are compressed (that is, having data at only even-numbered line locations, so they contain half of the pixels of the acquired image (compressed). And odd field contains data at only odd-numbered line locations (Col 1, line 34-37), so they contain half of the pixels of the acquired image (compressed). Also, Sezan teaches that “motion-compensated interpolation is achieved by copying the value of the pixel locate at position c in odd field O1 to the missing pixel location a” (Col 13, lines 11-13, Fig. 12A-C), which means that later images are actually decompressed (pixels of odd lines are introduced to even images). Therefore, the disclosure of Sezan is contrary to what is claimed in Claim 1, and, consequently, it does not disclose element “the acquired images are not subjected to compression or decompression during the applying of the operation” of Claim 1.

With regard to the Ma publication, the Patent Office has stated that “Ma teaches “Extracting Motion Trajectories” in Col. 10, lines 41,42 using a vector field denoising” in Col. 10, lines 43-47. Thus, the extracted motion trajectories reasonably come from the

vector field that corresponds to the claimed displacement vector fields” (non-final Office Action, page 6).

Applicant respectfully disagrees. Ma teaches (input, see Fig. 1) that “digital video has two kinds: non-interlaced (or progressive-scanned) and interlaced” (see Col 5, lines 39-41). This is not what is claimed in amended independent Claim 1. Claim recites comparing two chronologically successively acquired values detected for each pixel of the detector unit to determine a respective displacement vector field between the two chronologically successively acquired images, followed by the step of identifying a trajectory for each pixel of the acquired images from respective displacement vector fields determined for each two chronologically successively acquired images. Claim 1 clearly recites that the image is optically acquired by the detector unit (from light coming from the subject under the microscope) and that the comparison happened between two chronologically successively acquired values detected for each pixel of the detector, as opposed to any comparison that happens in Ma with regard to the images formed by processing (TV/video coded signal). This is not what Claim 1 recites and, therefore, the Ma publication does not cure the lack of disclosure of Sezan.

Moreover, Ma does not disclose identifying a trajectory for each pixel of the acquired images from respective displacement vector fields determined for each two chronologically successively acquired images, as claimed in amended Claim 1. On the contrary, Ma teaches block-matching motion estimation system for generation of motion vectors (see Col. 5, lines 15-20, and diamond search algorithm developed by Ma et al.)

Furthermore, Ma teaches that “the content is specifically meant for the motion trajectory of video object identified from the given digital video clip, and automatically identifying multiple moving video objects and then simultaneously tracking them based on their motion trajectories generated” (see Col 3, lines 24-29). In other words, Ma teaches applying operations to images other than images acquired for identification of trajectory (see Fig. 1, for example), which is contrary to what is claimed in amended

independent Claim 1 that the acquired images are not subjected to compression or decompression during the applying of the operation.

Since the combination of the Sezan and Ma publications does not disclose each and every element of Claim 1, Claim 1 is patentable over Sezan in view of Ma under 35 U.S.C. 103(a) and should be allowed.

With regard to dependent Claims 2, 8 and 11, Applicants asserts that since their base Claim 1 is non-obvious under 35 U.S.C. 103, therefore Claims 2, 8 and 11 are patentable over Sezan on view of Ma. Allowance of Claims 2, 8 and 11 is respectfully requested.

With regard to the rejection of independent Claim 7, Applicant asserts that for all the above-presented arguments and reasons Claim 7 as amended is in compliance with the requirements of 35 U.S.C. 103 and is now patentable. Allowance of Claim 7 is respectfully requested.

Applicant also respectfully notices that the earliest publication date of Ma is August 22, 2002. Ma has been cited by the Patent Office as a secondary reference to combine with the primary reference (Sezan).

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) over Sezan on view of Ma, as applied to claims 1,2,7,8 and 11 above, further in view of Bouquet et al. (US Patent Application Publication No: US 2003/0012408 A1). Claims 5 and 9 are rejected under 35 U.S.C. 103(a) Sezan on view of Ma, as applied to claims 1,2,7,8 and 11 above, further in view of Bouquet as applied to claims 3 and 4 above, further in view of Powers (US Patent 4,400,719).

Claim 4 depends in Claim 3, and Claim 3 depends on patentable amended Claim 1 and is patentable over the cited combination of publications. Claim 5 depends on patentable Claim 4 and is patentable over the cited combination of publications. Claim 9

depends on now patentable Claim 7. Therefore, Claim 9 is patentable over the cited combination of publications.

Claims 6 and 10 are rejected under 35 U.S.C. 103(a) over Sezan on view of Ma, as applied to claims 1,2,7,8 and 11 above, further in view of Walton (US Patent 3,967,054).

Claim 6 depends on Claim 1, which, as explained above is patentable over the cited combination of publications. Therefore, Claim 6 is patentable over Sezan on view of Ma and in view of Walton and should be allowed.

Claim 11 depends on any Claim of Claim 1 through 6, which, as explained above, is patentable. Therefore, Claim 11 is patentable over Sezan on view of Ma, in view of Powers and in view of Walton, and should be allowed.

It is believed that the present application is in condition for allowance. A Notice of Allowance is respectfully solicited in this case. Should any questions arise, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,

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